

ABSTRACT

The present invention relates to a process for preparing oligonucleotide probes which are designed to detect mutations in the entire interrogated codon regions determined by codon scanning algorithm, a process for preparing DNA chip using the probes prepared by the said process, a DNA chip prepared by the said process, and a method for detecting mutations using the said DNA chip. The process for preparing probes of the invention comprises the steps of: selecting mutated codon to be interrogated; and, preparing the probes such that the interrogated mutated codon is located at the center-most position of the oligonucleotide probe consisting of 7 nucleotides or more, rest of sequences are remained same as those of normal individuals and amine group is linked to 3' terminus of the probe, and the process for preparing DNA chip comprises a step of immobilizing the said probes on solid surface. By using the DNA chip of the invention, errors made in interpretation of results due to base pair mismatches found with DNA probes designed by conventional algorithms can be avoided, homozygous mutations can be discerned from heterozygous mutations, mutations causing various genetic diseases can be detected and identified in a rapid and accurate manner, and DNA chip using codon scanning algorithm can be applied for the diagnosis of all kinds of genetic mutation-associated diseases and the identification of mutations such as SNP.